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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte BERND WENDEROTH and BIRGIT FLAIG

Appeal 2009-012419
Application 10/536,806
Technology Center 1700

Decided: May 27, 2010

Before CHUNG K. PAK, CHARLES F. WARREN and
TERRY J. OWENS, *Administrative Patent Judges*.

OWENS, *Administrative Patent Judge*.

DECISION ON APPEAL
STATEMENT OF THE CASE

The Appellants appeal under 35 U.S.C. § 134(a) from the Examiner's rejection of claims 1-6, which are all of the pending claims. We have jurisdiction under 35 U.S.C. § 6(b).

The Invention

The Appellants claim an antifreeze composition and a method for using it. Claim 1 is illustrative:

1. An antifreeze concentrate for cooling systems in fuel cell drives, from which ready-to-use aqueous coolant compositions having a conductivity of not more than 10 $\mu\text{S}/\text{cm}$, which comprise
 - (a) from 10 to 90% by weight of 1,3-propanediol or mixtures of 1,3-propanediol with alkylene glycols and/or derivates [sic, derivatives] thereof,
 - (b) from 90 to 10% by weight of water,
 - (c) from 0.005 to 5% by weight of one or more five-membered heterocyclic compounds (azole derivatives) having 2 or 3 hetero atoms from the group consisting of nitrogen and sulfur, which contain no sulfur atom or not more than one sulfur atom and which may carry an aromatic or saturated six-membered fused moiety and
 - (d) ortho-silicic esters,
result by dilution with ion-free water.

The References

Eaton	6,818,146 B2	Nov. 16, 2004
Wenderoth ¹	WO 02/055630 A1	Jul. 18, 2002
Boon	WO 02/055759 A2	Jul. 18, 2002

The Rejections

Claims 1-6 stand rejected under 35 U.S.C. § 103 over Eaton in view of Wenderoth and over Boon in view of Wenderoth.

OPINION

We affirm the rejections.

Issue

¹ Citations herein to Wenderoth are to an English language equivalent thereof, US 2004/0028971 A1 (published Feb. 12, 2004), which is of record.

Have the Appellants indicated reversible error in the Examiner's determination that the Appellants' evidence of unexpected results is insufficient for overcoming the prima facie case of obviousness?

Findings of Fact

It is undisputed that the Appellants' claimed invention would have been prima facie obvious to one of ordinary skill in the art over Eaton (col. 12, ll. 2-8) or Boon (p. 4, ll. 4-32), in view of Wenderoth (abstract, ¶¶ 0012, 0023, 0031) (Br. 11).

Analysis

The Appellants argue that their Specification's Tables 1 and 2 show that their claimed invention provides the unexpected result of maintaining low electrical conductivity over time (Br. 12-13; Reply Br. 3-4).

The Appellants' evidence is not effective for overcoming the prima facie case of obviousness for the following reasons.

First, the Appellants' showing of unexpected results does not provide a comparison of the claimed invention with the closest prior art. *See In re Baxter Travenol Labs.*, 952 F.2d 388, 392 (Fed. Cir. 1991); *In re De Blauwe*, 736 F.2d 699, 705 (Fed. Cir. 1984).

Table 1's Example 1 does not include the ortho-silicic esters required by each of the Appellants' claims and, therefore, is not a comparison of the claimed invention. As for Table 1's Example 2, a comparison of that example and Table 1's Example 1 shows that regardless of whether the composition contains an ortho-silicic ester (tetraethoxysilane), the electrical conductivity shows little change over the time period in the tests. Accordingly, a composition containing 1,3-propanediol and an azole derivative such as benzotriazole or tolyltriazole is closer to the claimed

invention than the Example 2 in the Appellants' Specification's Table 2 which contains monoethylene glycol (instead of 1,3-propanediol), benzotriazole and tetraethoxysilane. Such a composition containing 1,3-propanediol and an azole derivative is that of Boon (p. 4, ll. 4-32) or Eaton (col. 12, ll. 2-8).

The Appellants point out that Eaton's Table 6 shows a conductivity increase of 9 and 14 $\mu\text{hos}/\text{cm}$ after, respectively, 10 and 30 days, and that Wenderoth's Table shows conductivity increases, between 7 and 42 days, from 0.8 to 3.0 $\mu\text{S}/\text{cm}$ and from 2.2 to 14.4 $\mu\text{S}/\text{cm}$ (Br. 14-15).

Those compositions are not the closest prior art. In Eaton's Table 6 the composition contains only 1,3-propanediol and water, and the composition in Wenderoth's Table does not include an azole derivative. Moreover, there are differences other than compositional differences between those tests and the Appellants' tests (Eaton, col. 10, ll. 4-8; Wenderoth, ¶ 0041; Spec. 6:31 – 7:3). Hence, the cause-and-effect relationship which the Appellants desire to show between composition and the maintenance of low electrical conductivity over time is lost in multiple unfixed variables. See *In re Heyna*, 360 F.2d 222, 228 (CCPA 1966); *In re Dunn*, 349 F.2d 433, 439 (CCPA 1965).

Second, the Appellants' evidence is not commensurate in scope with the claims. See *In re Grasselli*, 713 F.2d 731, 743 (Fed. Cir. 1983); *In re Clemens*, 622 F.2d 1029, 1035 (CCPA 1980).

The Appellants' claims encompass 10 to 90 wt% 1,3-propanediol and 0.005 to 5 wt% azole derivative, yet the compositions in the Appellants' tests contain only 60 vol% 1,3-propanediol and 0.1 wt% of only one azole derivative (benzotriazole). The Appellants have not established that the

particular compositions tested provide results which are representative of the results obtained using compositions covering the broad ranges in the Appellants' claims.²

Conclusion of Law

The Appellants have not indicated reversible error in the Examiner's determination that the Appellants' evidence of unexpected results is insufficient for overcoming the *prima facie* case of obviousness.

DECISION/ORDER

The rejections of claims 1-6 under 35 U.S.C. § 103 over Eaton in view of Wenderoth and over Boon in view of Wenderoth are affirmed.

It is ordered that the Examiner's decision is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a).

AFFIRMED

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² Eaton's Table 7 appears to indicate that the electrical conductivity stability over time improves significantly as the 1,3-propanediol concentration increases from 55 wt% to 85 wt%.